

What is claim is:

1. A nail gun for driving a nail into a work piece,
the nail gun comprising:

a body;

5 a nail ejection portion connected to the body and
having a tip formed with a nail ejection hole;

a magazine connected to the nail ejection portion, the
magazine feeding nails one at a time to the ejection
portion;

10 a blade supported in the body capable of reciprocal
movement in opposing first and second directions and, when
activated, driven in the second direction to the nail
ejection portion to strike a nail in the nail ejection
portion and to eject the nail through the nail ejection
15 hole;

an activation switch having a protruding plunger, the
activating switch activating the blade when the plunger is
pressed inward;

20 a trigger having a trigger pivot end and a trigger
free end, the trigger being supported pivotably on the body
at the trigger pivot end;

a trigger arm positioned within the trigger, the
trigger arm having a trigger-arm pivot end, a central
portion, and a trigger-arm free end, the trigger-arm pivot
25 end being pivotably disposed at a position between the

plunger and the trigger free end, the central portion being disposed at a position adjacent to the plunger;

5 a safety portion having a first-side end disposed in contact with the trigger-arm free end and a second-side end positioned near the nail ejection hole, the safety portion being supported capable of reciprocal movement in the first and second directions between an upper dead center and a lower dead center; and

10 urging means for urging the safety portion into the upper dead center;

wherein when the trigger is pivoted on the trigger pivot end, pivoting movement of the trigger moves the trigger-arm pivot end to press the central portion of the trigger arm into contact with the plunger and, with the plunger serving as a fulcrum, to press the trigger-arm free end in the second direction against the first-side end of the safety portion.

20 2. A nail gun as claimed in claim 1, wherein when movement of the safety portion in the second direction is unobstructed, pressing force of the trigger-arm free end moves the safety portion in the second direction against urging force of urging means.

25 3. A nail gun as claimed in claim 2, wherein the safety portion is configured from at least a first-side safety portion including the first-side end, a second-side

safety portion including the second-side end, and a separation means, the separation means separating connection between the first-side safety portion and the second-side safety portion when the trigger-arm free end moves the
5 first-side safety portion in the second direction by a predetermined amount or greater.

4. A nail gun as claimed in claim 3, wherein the second-side safety portion has a second-side end formed with a recess portion and the separation means is configured
10 from:

a cam member pivotably supported at a second-side end of the first-side safety portion and having a second-side end for engaging with the recess portion of the second-side safety portion;

15 a guide groove portion provided on an outer surface of the nail ejection portion, the guide groove portion being formed with a guide groove extending diagonally away from nail ejection portion with respect to the second direction; and

20 a guide protrusion protruding from the second-side end of the cam member into engagement with the guide groove, the guide protrusion following diagonal shape of the guide groove when the first-side safety portion is moved in the second direction, so that the second-side end of the cam
25 member separates from the recess portion of the second-side

safety portion.

5. A nail gun as claimed in claim 3, wherein the first-side safety portion and the second-side safety portion are each formed with a hole, the nail ejection portion being
5 formed with a groove extending diagonally away from the first-side safety portion with respect to the second direction, the separation means including:

a connector slidably fitted through the holes of the first-side safety portion and the second-side safety portion
10 to connect the first-side safety portion and the second-side safety portion together; and

a pin provided on an end of the connector and engaged in the groove of the nail ejection portion, the pin following the groove when the first-side safety moves in the
15 second direction, so that the connector pulls out from the hole of the second-side safety portion when the first-side safety moves in the second direction by a predetermined amount or greater.

6. A nail gun as claimed in claim 1, wherein when
20 movement of the safety portion from the upper dead center toward the lower dead center is unobstructed, the safety portion moves freely in the second direction from the upper dead center toward the lower dead center, thereby minimizing pressing force of the center portion of the trigger arm on
25 the plunger.

7. A nail gun as claimed in claim 1, wherein if movement of the safety portion in the second direction is obstructed when the trigger is pivoted on the trigger pivot end, the first-side end of the safety portion contacted by
5 the trigger-arm free end serves as a fulcrum around which the trigger arm pivots with movement of the trigger, whereupon the central portion presses the plunger inward so that the activation switch activates the blade.

8. A nail gun as claimed in claim 1, wherein the
10 magazine supplies each nail so that a tip of each nail protrudes from the nail ejection hole of the nail ejection portion, the second-side end of the safety portion is disposed beyond the nail tip in the first direction when the safety portion is at the upper dead center.

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